

CCNPP3COLA PEmails

From: Steckel, James
Sent: Friday, November 12, 2010 4:52 PM
To: Poche, Robert; Massie, Wayne A
Cc: CCNPP3COL Resource; Wilson, Anthony
Subject: RE: Chapter 11 Slides for Go To Meeting 11/15
Attachments: Calvert Chapter 11 ACRS Presentation Slides Nov 30 2010 FINAL.pdf

Chapter 11 attached. My drag & dropped failed earlier.

Jim

From: Poche, Robert [<mailto:Robert.Poche@constellation.com>]
Sent: Friday, November 12, 2010 4:50 PM
To: Steckel, James; Massie, Wayne A
Cc: CCNPP3COL Resource; Wilson, Anthony
Subject: RE: Chapter 11 Slides for Go To Meeting 11/15

Jim,

There was no attachment

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From: Steckel, James [<mailto:James.Steckel@nrc.gov>]
Sent: Friday, November 12, 2010 4:48 PM
To: Poche, Robert; Massie, Wayne A
Cc: CCNPP3COL Resource; Wilson, Anthony
Subject: Chapter 11 Slides for Go To Meeting 11/15

Rob & Wayne,

Attached are the Chapter 11 slides for the Monday afternoon Go To slide review. Slides for Chapters 10 and 16 will follow Monday morning.

Jim Steckel

James Steckel
Project Manager
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Subject: RE: Chapter 11 Slides for Go To Meeting 11/15
Sent Date: 11/12/2010 4:52:04 PM
Received Date: 11/12/2010 4:52:05 PM
From: Steckel, James

Created By: James.Steckel@nrc.gov

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Tracking Status: None
"Wilson, Anthony" <Anthony.Wilson@nrc.gov>
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Presentation to the ACRS Subcommittee

**UniStar Calvert Cliffs Nuclear Power Plant (CCNPP) Unit 3
COL Application Review**

Safety Evaluation Report

CHAPTER 11: RADIOACTIVE WASTE MANAGEMENT

November 30, 2010

Staff Review Team



- **Technical Staff**
 - ♦ **Michelle Hart** – Section 11.1
Siting and Accident Consequences Branch
 - ♦ **Jean-Claude Dehmel** – Sections 11.2 to 11.5
Construction Health Physics Branch (Lead Reviewer)
 - ♦ **Joshua Wilson** – Sections 11.2 to 11.4
Balance of Plant Branch
- **Project Managers**
 - ♦ **Surinder Arora** – Lead Project Manager
 - ♦ **Jay Patel** – Chapter Project Manager

Overview of Staff's Review



SRP Section/Application Section		Number of RAI Questions	Number of SE Open Questions
11.1	Source Terms	0	0
11.2	Liquid Waste Management System	4	2
11.3	Gaseous Waste Management System	2	1
11.4	Solid Waste Management Systems	1	0
11.5	Process and Effluent Radiological Monitoring and Sampling Systems	2	0
Totals		9	3

COL Review Topics of Interest



Chapter 11 – Radioactive Waste Management

CCNPP Unit 3 COL Application Review

- COL application contains:
 - ♦ Interface Items
 - ♦ COL information items
 - ♦ Supplemental Information
- COL application identified one departure from the U.S. EPR FSAR
 - ♦ Use of alternate met dispersion parameters in one offshore non-occupied sector
- COL application applies U.S. EPR details as site-specific information:
 - ♦ Doses to members of the public from liquid and gaseous releases based on U.S. EPR plant and generic site information
 - ♦ Cost-benefit analyses for the liquid and waste management systems based plant and generic site information
- COL application review included:
 - ♦ Commitments of operational programs for the control and monitoring of liquid and gaseous effluents, and management of low-level radioactive waste
 - ♦ Confirming that COL information items identified in U.S. EPR FSAR are addressed
 - ♦ Determining that COL FSAR provides sufficient details for the staff to confirm regulatory compliance and conduct independent assessments

COL Review Topics of Interest



Section 11.1 – Source Terms

- COL FSAR incorporates by reference FSAR Section 11.1 of the U.S. EPR DCD
- COL information items - N/A
- Supplemental information – N/A
- Departures – N/A
- No staff review required

COL Review Topics of Interest



Section 11.2 – Liquid Waste Management System

- Interface Requirements
 - ♦ ODCM operational program for liquid effluents under FSAR Sections 11.5 and 13.4
 - ♦ Postulated radwaste tank failure evaluation under FSAR Section 2.4.13
 - ♦ Quality assurance program under FSAR Section 17.5 for the LWMS
 - ♦ Modification of FSAR TS 16.5.5.11, given no outdoor radwaste storage tanks
- COL Information Items
 - ♦ Site-specific LWMS cost-benefit analysis (CBA)
 - ♦ Implementation of a site-specific ODCM as a COL information item in FSAR Section 11.5 for all radioactive effluents
- Supplemental Information
 - ♦ FSAR Section 11.2 assumes that the U.S. EPR FSAR CBA is applicable to Calvert Cliffs Unit 3
- Departures
 - ♦ Revised FSAR Part 7 states that doses to maximally exposed individuals are bounding for all sites given dose results of U.S. EPR FSAR Section 11.2

COL Review Topics of Interest



Section 11.2 – Liquid Waste Management System

- Result
 - ♦ Staff determines that the U.S. EPR CBA is not applicable to Calvert Cliffs Unit 3
 - ♦ Staff requests the applicant to conduct a site-specific CBA for Calvert Cliffs Unit 3
 - ♦ Staff requests applicant to assess doses from liquid effluent releases and demonstrate compliance with 10 CFR 20.1301 and 20.1302, Part 20, Appendix B ECLs, Part 50 Appendix I design objectives, and 40 CFR Part 190 under 10 CFR 20.1301(e)
 - ♦ Staff requests applicant to confirm the endorsement of RG 1.143 QA requirements for those portions of the LWMS that are the responsibility of the COLA
 - ♦ Staff requests applicant to revise FSAR Part 7 statement on bounding doses for all sites given plant and site-specific dose results of COL FSAR Section 11.2
 - ♦ Staff confirmation of adequacy of RAI responses and independent confirmation of MEI and population doses pending receipt of proposed FSAR revisions
 - ♦ Modification of FSAR TS 16.5.5.11 found acceptable given that LWMS design does not include outdoor radwaste storage tanks

COL Review Topics of Interest



United States Nuclear Regulatory Commission

Protecting People and the Environment

Section 11.3 – Gaseous Waste Management System

- Interface Requirements
 - ♦ ODCM operational program for gaseous effluents under FSAR Sections 11.5 and 13.4
 - ♦ Quality assurance program under FSAR Section 17.5 for the GWMS
 - ♦ FSAR adopts by reference U.S. EPR FSAR TS 16.5.5.11 on GWMS radioactivity monitoring program

- COL Information Items
 - ♦ Site-specific GWMS cost-benefit analysis (CBA)
 - ♦ Implementation of a site-specific ODCM as a COL information item in FSAR Section 11.5 for all radioactive effluents

- Supplemental Information
 - ♦ FSAR Section 11.3 assumes that the U.S. EPR FSAR CBA is applicable to Calvert Cliffs Unit 3

- Departures
 - ♦ FSAR Part 7 addresses differences with U.S. EPR FSAR assumptions for atmospheric dispersion parameters in a NE sector located over water for which no residents are expected to reside routinely

COL Review Topics of Interest



United States Nuclear Regulatory Commission

Protecting People and the Environment

Section 11.3 – Gaseous Waste Management System

- Result
 - ♦ Staff determines that the U.S. EPR CBA is not applicable to Calvert Cliffs Unit 3
 - ♦ Staff requests the applicant to conduct a site-specific CBA for Calvert Cliffs Unit 3
 - ♦ Staff requests applicant to assess doses from gaseous effluent releases and demonstrate compliance with 10 CFR 20.1301 and 20.1302, Part 20, Appendix B ECLs, Part 50, Appendix I design objectives, and 40 CFR Part 190 under 10 CFR 20.1301(e)
 - ♦ Staff requests applicant to confirm the endorsement of RG 1.143 QA requirements for those portions of the GWMS that are the responsibility of the COLA
 - ♦ The staff finds the applicant FSAR Part 7 departure acceptable on the qualification that no one is expected to reside in the NE sector for extended time periods
 - ♦ Staff confirmation of adequacy of RAI responses and independent confirmation of MEI and population doses pending receipt of proposed FSAR revisions

COL Review Topics of Interest



Section 11.4 – Solid Waste Management System

- Interface Requirements
 - ♦ PCP operational program for administrative and operational controls under FSAR Sections 11.2, 11.3, 13.4, and 16
 - ♦ Compliance with liquid and gaseous effluent release limits and offsite doses associated with the operation of the SWMS is addressed in FSAR Sections 11.2, 11.3, and 11.5
 - ♦ CBA associated with the operation of the SWMS addressed in FSAR Sections 11.2 for the LWMS and 11.3 for the GWMS
 - ♦ Quality assurance program under FSAR Section 17.5 for the SWMS
 - ♦ Modification of U.S. EPR FSAR TS 16.5.6.2 on effluent release reporting requirements
- COL Information Items
 - ♦ Implementation of a plant-specific PCP by adopting NEI 07-10A, Generic FSAR Template Guidance for Process Control Program (PCP), for the management of low-level radioactive wastes
- Supplemental Information
 - ♦ FSAR adopts NEI 07-10A, Generic FSAR Template Guidance for Process Control Program (PCP)
- Departures
 - ♦ There are no departures associated with the SWMS

COL Review Topics of Interest



Section 11.4 – Solid Waste Management System

- Result
 - ♦ Staff requests applicant to identify administrative measures and arrangements for the long-term storage of Class B and C low-level wastes (LLW) beyond the built-in storage capacity (~8 years) of the Radwaste Processing Building
 - ♦ Staff requests applicant to confirm compliance with NRC regulations for the identified LLW storage options and arrangements with third parties for Class B and C LLW generated by Calvert Cliffs Unit 3
 - ♦ Applicant proposes to consider access to disposal and storage facilities, as available, constructing an onsite interim storage facility, and establishing commercial agreements with third parties to process, store, take ownership, and dispose of LLW generated by Calvert Cliffs Unit 3
 - ♦ The staff found the proposed options and commitments to meet NRC regulations and guidance and requirements of other Federal, State and local agencies acceptable
 - ♦ The staff finds the applicant revised FSAR TS16.5.6.2 acceptable in deleting the reporting requirements for sites with multiple operating units
 - ♦ Staff requests applicant to confirm the endorsement of RG 1.143 QA requirements for those portions of the SWMS that are the responsibility of the COLA
 - ♦ Staff finds adoption of NEI 07-10A PCP Generic FSAR Template acceptable

COL Review Topics of Interest



Section 11.5 – Process and Effluent Radiological Monitoring and Sampling Systems

- Interface Requirements
 - ♦ ODCM operational program for administrative and operational controls under FSAR Sections 11.2, 11.3, 13.4, and 16
 - ♦ ODCM used in demonstrating compliance with liquid and gaseous effluent release limits and offsite doses associated with the operation of the LWMS, GWMS, and SWMS, as described in FSAR Sections 11.2, 11.3, and 11.4
- COL Information Items
 - ♦ Implementation of a plant and site-specific ODCM by adopting, NEI 07-09A, Generic FSAR Template Guidance for Offsite Dose Calculation Manual (ODCM) Program description, in monitoring and controlling all radioactive effluent releases
- Supplemental Information
 - ♦ FSAR adopts NEI 07-09A, Generic FSAR Template Guidance for Offsite Dose Calculation Manual (ODCM) Program description
- Departures
 - ♦ There are no departures associated with the PERMSS

COL Review Topics of Interest



Section 11.5 – Process and Effluent Radiological Monitoring and Sampling Systems

- Result
 - ♦ Staff requests the applicant to identify administrative measures and arrangements on how the ODCM will control all liquid and gaseous effluent releases and doses to members of the public given that UniStar and Constellation will contribute to and compete for dose allocations under 10 CFR 20.1301, 20.1302, and 20.1301(e), and unity rule in complying with ECLs of Appendix B to Part 20
 - ♦ UniStar proposes arrangements with Constellation to coordinate and control all releases such that both licensees jointly manage and plan all releases in compliance with NRC regulations
 - ♦ The applicant states that such arrangements have not yet been established between UniStar and Constellation
 - ♦ The staff found UniStar’s proposed commitments and integration of these arrangements with Constellation acceptable
 - ♦ The implementation of the ODCM and procedures are a required license condition milestone, with completion before fuel load
 - ♦ Staff finds adoption of NEI 07-09A ODCM Generic FSAR Template and proposed ODCM modification acceptable
 - ♦ The staff finds the applicant revised FSAR TS 16.5.6.1 acceptable in deleting the reporting requirements for sites with multiple operating units

Staff Findings (1/2)



The COL FSAR for Calvert Cliffs Unit 3 Provides:

- Pending the resolution of open and confirmatory items, the applicant is expected to comply with 10 CFR 20.1301 and 20.1302, Part 20, Appendix B ECLs, Part 50, Appendix I design objectives, and 40 CFR Part 190 (under 10 CFR 20.1301(e)) limits on liquid and gaseous effluent releases, doses to the public, and ALARA provisions
- The adoption of the NEI 07-10A PCP Template is acceptable in complying with regulations of the NRC and other Federal, State, and local agencies in processing, preparing, storing, packaging, shipping, and disposing of LLW
- The proposed LLW management options are acceptable, including access to disposal and storage facilities, if available, constructing an onsite interim storage facility, and establishing commercial agreements with third parties to process, store, take ownership, and dispose of LLW generated by Calvert Cliffs Unit 3

Staff Findings (2/2)



The COL FSAR for Calvert Cliffs Unit 3 Provides:

- The adoption of NEI 07-09A ODCM Template is acceptable in complying with NRC regulations and guidance in monitoring and controlling liquid and gaseous effluent releases and doses to members of the public
- The commitment to modify and supplement NEI 07-09A ODCM Template with procedures is acceptable in ensuring that UniStar and Constellation jointly comply with NRC regulations and guidance in monitoring and controlling liquid and gaseous effluent releases and doses to members of the public
- The implementation of the NEI 07-10A PCP and a modified NEI 07-09A ODCM is a license condition, with completion before fuel load

Acronyms

- ALARA – As Low As is Reasonably Achievable
- CBA – Cost-Benefit Analysis
- COL – Combined License
- ECL – Effluent Concentration Limit
- FSAR – Final Safety Analysis Report
- GDC – Generic Design Criteria
- GWMS – Gaseous Waste Management System
- HEPA – High Efficiency Particulate Air
- LOCA – Loss Of Coolant Accident
- LLW – Low-Level Waste
- LWMS – Liquid Waste Management System
- MEI – Maximally Exposed Individual
- ODCM – Offsite Dose Calculation Manual
- PCP – Process Control Program
- RAI – Request for Additional Information
- RCS – Reactor Coolant System
- RG – Regulatory Guide
- SER – Safety Evaluation Report
- SRP – Standard Review Plan
- SWMS – Solid Waste Management System
- TS – Technical Specifications